

1 has also been amended to have proper antecedents. Claims 5, 17 and 18 are deleted.

2 Remaining claims from 2 up to and including 19 are all dependent on allowable claim 1. They are
3 fully supported by the specifications and drawings, and the antecedents are now properly stated, and
4 it is respectfully submitted they are now allowable, with the following special remarks:

5 - In claim 4, subparagraph (a) has been deleted as superfluous in view of amendment
6 of claim 1.

7 - The ambiguity of claim 16 has been correctly not understood by examiner. Applicant
8 apologizes for unintentional ambiguity: it has been corrected by deleting "a quantify
9 equal to approximately;" the open ended line 13 has been completed by inserting 1.6.
10 Claim 16 can now be properly understood, and is clearly explained and supported by
11 the equation for wing area S_w in specifications' pg. 17, and the line following the
12 equation.

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14 ON THE ALLOWABILITY OF ORIGINAL CLAIM 20-24 AS AMENDED HEREIN:

15 Claim 20 specified in a single hull form capable of operating in both surface and subsurface
16 modes (specs pg. 14, sections 5a, 5b). The language of claim 20 is supported directly in the
17 specifications, pg. 18, sections (a) and (b). Examiner rejected claim 20 based on Mills. Examiner
18 indicates that Mills teaches,

- 19 - the shape claimed in claim 20, and
20 - surface and subsurface in claim 20 fails to define a specific structure.

21 Examiner's comments are important, and have led applicant to further study Mills' patent,
22 which have an admittedly complex topology further complicated, in applicant's view, by a language
23 in the ext which is not easy. After study, applicant respectfully points out that Mills teaches
24 necessarily two different shapes, one for surface use only, and a necessarily different one for
25 submerged use. Mills' teachings, its drawings, are clear:

- 26 - Mills' Fig. 2...represents the application of the invention of boats and other craft
27 partially immersed in the water ... (Mills' pg. 2, column 1, lines 20-24)..."when but
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two sides are subjected to the action of the resisting (fluid) medium....” (Mills pg. 1, column 1, lines 13-15).

In contrast, Mills Fig. 1, “illustrates the construction embodied in devices for use entirely immersed in water or surrounded by air” (Mills Pg. 1, column 1, lines 10-14)” This gives it (Fig. 1) four equal longitudinal sides(Mills Pg. 2, column 1, lines 58-60), and furthermore, “Both ends being alike, this body (Fig. 1) will pass through the air, water, or other fluid medium with equal ease in either direction” (Mills’ Pg. 2, column 1, lines 64-66).

At this point of applicants' review of Mills, it is important to highlight that Fig. 1 is necessarily dependent on Fig. 2 as follows:

“when the invention is to be applied to submerged projectile.....or any other use where the body is wholly enclosed by the resisting fluid, I unite to the half already described (surface body of Fig. 2) another half of the same dimensions and form, placing the flat sides together so that their edges and ends exactly conform. This gives it (Fig. 1) four equal longitudinal sides,(Mills’ pg. 2, column 1, lines 51-61).

ACCORDINGLY, MILLS TEACHES AND SHOWS IN HIS DRAWINGS:

- NECESSARILY TWO DIFFERENT BODIES, ONE FOR SURFACE ONLY, AND ANOTHER FOR SUBMERGED USE, AND

- THE HEIGHT IN PROFILE OF THE FORWARD END OF MILLS' SUBMERGED BODY IS NECESSARILY EQUAL TO THE WIDTH IN PLANVIEW OF THE REARWARD END OF MILLS' SUBMERGED BODY.

These characteristics are intrinsic to Mills, are inherently and qualitatively different from applicants' TH-MM, and furthermore Mills' submerged body is totally unstable in yaw and not operative. Mills does not show, or teach, a single body for both surface and subsurface, as taught and claimed in applicants' claim 20. Moreover, Mills teaches two bodies which are topologically and functionally different in kind from each other as has been reviewed, and as is further clarified

1 n Figs. A-1 to A-6 attached to this amendment, which were taken directly from Mills according to
2 Mills' teachings:

3 Fig. A-1 pertains to Mills' Fig. 2 for a surface boat, and clearly shows how Mills' boat shape
4 has a deep draft forward which is half its rear beam shown in Fig. A-2. Also, it has only two wetted
5 sides in a triangular section of Fig. A-3.

6 Fig. A-4 pertains to Mills' Fig. 1; it was drawn rigorously according to Mills' teaching for
7 a submerged hull, and corresponds to Mills' Fig. 1. Observe it has an overall height on its forward
8 end in side view necessarily equal to its width in planview adjacent its rearward end shown in Fig.
9 A-5.

10 Accordingly, Mills' submerged shape is completely different from TH-MM, which by reason
11 of its unique shape invented by applicant, is able to operate as a surface and subsurface watercraft.
12 Hence, it has been proven that Mills' two hulls, one for surface and another for submersible are
13 intrinsically and necessarily different in type from applicant's invention; the structural difference of
14 the submerged bodies being most clearly exemplified by Mills' submerged bow height in profile
15 being necessarily equal to its rear beam in planview, i.e. a ration of 1, whereas in applicant's
16 submerged body the ratio is much less than 1. This fundamental difference in applicant's invention
17 has been incorporated in amended independent claim 20, now resubmitted as independent claim 40,
18 which specifies a ratio forward depth to rearward width substantially smaller than 1, and no greater
19 than about 0.5 in claim 41. These ratios are supported by Fig. 5, which has a scale incorporated in
20 it.

21 Also, Mills' submerged body's maximum height in profile at its bow, has an inherent
22 directional instability in yaw when moving forward. This inherent problem is resolved by
23 applicant's invention, by having its maximum height in profile substantially to the rear of its forward
24 end, as in claim 42, obviously allowable.

25 Another limitation of Mills' bodies are its continuously twisting surfaces inherently adverse
26 for radar detection and adverse for sonar if underwater. In contrast, applicant teaches a body
27 envelope for a submersible which is made of flat panels arranged in a streamlined disposition, as
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1 now claimed in claim 50, a new and unique stealth development for a submersible craft.

2 Claim 43 is allowable original claim 23, written in independent form.

3 Claim 44 is dependent on claim 40, and pertains to and is supported by wings of Fig. 6 and
4 its text.

5 Claim 45 is dependent on claim 40, and pertains and is supported by trailing flap of Fig. 5
6 and its text.

7 Claim 46 is allowable original claim 32, written in independent form.

8 Claim 47 is dependent on claim 40, and is supported by parachute of Fig. 7 and its text.

9 Claim 48 is dependent on claim 40, and is supported by tricycle gear of Fig. 6 and its text.

10 Claim 49 is dependent on claim 40, and is supported by Fig. 8A, path 174, and its related
11 text.

12 Claim 50 clearly specifies a faceted submersible anti-radar shape, a new and unique
13 development in naval field, as stated earlier, and shown n Figs. 3 and 5.

14 Claim 51 is directed to Fig. 7 and its pertinent text, and pertains to power application needed
15 for path 155 of Fig. 7

16 Claim 52 is dependent on claim 44 and further defines special retractable wing features
17 exemplified in Fig. 6A and 6B and its text.

18 It is believed that the present amendments add no new matter and place the claims in
19 condition for allowance over the cited prior art. Applicant further would like to thank the examiner
20 for his time and efforts in communicating the deficiencies in the originally filed application, and has
21 attempted to correct them in this amendment.

1 Applicant is mailing this amendment after expiration of the three month response period but
2 within the second month's extension of time permitted by 37 C.F.R. § 1.136 and accompanied by the
3 fee set forth in 37 C.F.R. § 1.17(a). This application is thus believed to be in condition for allowance
4 of all claims remaining herein, and such action is respectfully requested.

5 Respectfully submitted,

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13 CERTIFICATE OF MAILING

14 I hereby certify that this Amendment for a TRANSONIC HULL AND HYDROFIELD II,
15 Serial N° 09/672,190, was mailed by first class mail, postage prepaid, to the Commissioner of Patents
16 and Trademarks, Box RESPONSES/ NO FEE, Washington, DC 20231, on this 4th day of March,
17 2002, which is the first day following March 2, 2002 which is not a Saturday, Sunday or Federal
18 Holiday.

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